UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8EPR-SR

January 18, 2008

MEMORANDUM

SUBJECT: Libby Asbestos Site, Operable Unit 3, Phase I Sampling Program, Analytical Results for Asbestos in Surface Water

FROM: Bonnie Lavelle
Remedial Project Manager

TO: Libby Asbestos Site Operable Unit 3
Site File

The attached documents summarize technical discussions regarding the asbestos analytical results for surface water samples collected during the OU3 Phase I sampling effort in October 2007. The documents consist of the following:

1. Email message from Lynn Woodbury of SRC dated January 8, 2008
2. Email message from Charles LaCerra of EMSL dated January 9, 2008
3. Email message from Lynn Woodbury of SRC dated January 11, 2008
4. Email message from Bill Brattin of SRC transmitting an evaluation of asbestos surface water results comparing the original asbestos result with how it would have likely changed if each matrix particle had been enumerated as required by ISO 10312
5. CD of the raw data benchsheets for the surface water samples transmitted to EPA by EMSL

Attachments

"Lynn Woodbury"
<woodbury@syrres.com>

01/08/2008 09:21 AM

Please respond to
<woodbury@syrres.com>

To Bonita Lavelle/EPR/R8/USEPA/US@EPA

cc "Amber Bacom" <abacom@syrres.com>, "'Bill Brattin'" <brattin@syrres.com>

bcc

Subject OU3 water results

History: This message has been forwarded.

Bonnie -

I think I have determined the heart of the issue Mary would like to discuss this morning (it came to me on the lightrail train as I was leaving last night...). It has to do with the recording rules of the TEM EPA 100.2 analytical method for water. In this method, a matrix is counted as a single structure regardless of the number of fiber protruding from it (i.e., it is recorded as an "M" on the recording sheet). So, if there were 5 fibers protruding from the matrix, it would under-count by a total of 4 structures. [In the future, if we collect additional water samples we will modify the recording rules so that they are similar to ISO 10312 to avoid this issue...]

In our water samples, about 93% (576 of 617 structures) of all structures recorded were individual fibers. Only about 6% (35 of 617 structures) of all structures recorded were matrices. According to Ron Mahoney (the TEM analyst at the Mobile lab), in his recollection, there were usually only a few cases where more than one fiber was protruding from the matrix. In order to confirm his recollection, we will need to obtain the hard copy benchsheets from the TEM analyses [we also need these benchsheets to perform verification/validation of the TEM results]. The benchsheets provide sketches of each matrix recorded, and would provide us with the documentation for how many protrusions were present for these matrix structures; thus, giving us better information on the potential for bias. However, based on the low frequency of recorded matrices and presuming that Ron's recollection is correct, it is likely that this is not a major issue with the water data set.

Could you please ask Remedium to request that Westmont provide PDFs of the hard copy benchsheets for the OU3 water samples to SRC? To date, we haven't been provided with the hard copy lab jobs which contain this information.

Without these benchsheets, any discussions regarding this issue would be purely speculative...it might be better to postpone a call with Mary until the benchsheets are available for review. If you still want to have a call at 10AM, we are available - it might also be advantageous to have Ron Mahoney on the line.

Thanks,
Lynn

::
lynn woodbury
syracuse research corporation
environmental science center
999 18th street, suite 1975
denver, co, 80202

main: 303.292.4760
fax: 303.292.4755

direct: 303.357.3127
email: woodbury@syrres.com

"LaCerra, Charles" <CLaCerra@EMSL.com>
01/09/2008 07:45 AM

To "Marriam, Robert R." <Robert.R.Marriam@grace.com>
cc Bonita Lavelle/EPR/R8/USEPA/US@EPA
bcc
Subject RE: request for add'l lab information

History: This message has been replied to.

Thanks Debbie.

Bonnie: we will be sending Remedium hardcopy reports for all water samples. If you like, we can provide these to you in electronic format. Benchsheets will be included. Charles LaCerra

-----Original Message-----
From: Marriam, Robert R. [mailto:Robert.R.Marriam@grace.com]
Sent: Wednesday, January 09, 2008 9:43 AM
To: LaCerra, Charles
Cc: Parker, Debbie
Subject: FW: request for add'l lab information

Charles,

This is Debbie. Per our conversation this morning, I am forwarding Bonnie's request below.

Thank you for your assistance.

Debbie Parker
901-820-2030

Robert R. Marriam, Consultant
Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119
901-820-2023 Office
901-277-9031 Cell

-----Original Message-----
From: Lavelle.Bonita@epamail.epa.gov
[mailto:Lavelle.Bonita@epamail.epa.gov]
Sent: Tuesday, January 08, 2008 4:53 PM
To: Marriam, Robert R.
Subject: request for add'l lab information

Dear Bob,

We've been looking closely at the asbestos analytical results for OU3 samples and need some additional information from EMSL regarding the results for surface water.

Basically, the recording rules that we instructed the laboratory to use in the SAP required that a matrix be counted as a single structure, recorded as "M" on the recording sheet. For these results, we need to understand how many protrusions were present on these matrices. The hard copy benchsheets from the TEM analysis provide sketches of each

matrix recorded, which will help answer our questions.

EPA requests that EMSL provide PDFs of the hard copy benchsheets for the TEM analysis of the OU3 water samples. The copies should be provided to me and I'll ensure they're distributed to SRC and the EPA technical folks.

Given the arrangements you've made to cover the cost of the laboratory analyses, I'm unclear whether the request should come directly from me or should be made by you. I believe the request should go to EMSL - Westmont.

Thanks for your help. Please call if you have any questions about what we're looking for or why.

Sincerely,

Bonnie Lavelle
Remedial Project Manager
Libby Asbestos Superfund Site, OU3
EPA Region 8
1595 Wynkoop Street
8EPR-SR
Denver, CO 80202-1129

(303) 312-6579
Fax (303) 312-7151

"Lynn Woodbury"
<woodbury@syrres.com>

01/11/2008 01:48 PM

Please respond to
<woodbury@syrres.com>

To Bonita Lavelle/EPR/R8/USEPA/US@EPA

cc <brattin@syrres.com>, "Amber Bacom"
<abacom@syrres.com>

bcc

Subject RE: OU3 water samples

History: This message has been replied to.

Bonnie -

We can easily do this for you (in fact, I think I have something prepared already that addresses your request).

Before sending it along to you though, I'd like to add an additional piece of information - the number of sub-structures recorded for each matrix - which will provide quantitative information on potential under-counting. With the information in the hard copy benchsheets provided by EMSL yesterday, we can prepare this information with limited effort. Give us a day or two to go through the hard copies and extract this information and we will provide you with an updated summary table for OU3 water samples.

Let me know if you need something sooner,
Lynn

-----Original Message-----
From: Lavelle.Bonita@epamail.epa.gov [mailto:Lavelle.Bonita@epamail.epa.gov]

Sent: Friday, January 11, 2008 1:38 PM
To: brattin@syrres.com
Cc: woodbury@syrres.com
Subject: OU3 water samples

Hi Bill

I'm so sorry to hear you're not feeling well. I hope you get a ton of rest this weekend and feel better soon.

I'm just sending this note so I don't forget -

Regarding the observation of matrix structures in the surface water samples from OU3, Mary has advised me that we should characterize the frequency of matrix structures on a sample by sample basis and by sample location. Is that something you can do with all the information I forwarded from EMSL yesterday? (because I certainly can't do it!)

thanks.

MARY REQUESTED ORIGINAL EDDs FOR SAMPLES W/ MATRIX STRUCTURES IDENTIFIED
LYNN EMAIL TO US?

"Bill Brattin"
<brattin@syrres.com>
01/18/2008 02:06 PM

To Bonita Lavelle/EPR/R8/USEPA/US@EPA, Mary Goldade/EPR/R8/USEPA/US@EPA
cc
bcc
Subject Effect of martix particles on estimated concentrations of LA in water at OU3

Bonnie and Mary

In response to the questions that were raised regarding a possible underestimation of asbestos concentrations in water at OU3 because matrix particles are counted as 1 rather than indicating how many individual fibers are present in the matrix, we undertook an effort to evaluate the like size of any error than might occur.

Attached is a table summarizing the asbestos surface water results showing the results of the original analysis and how the results would likely have changed if each matrix particle had been enumerated separately (the latter is based on SRC's assessment of the bench sheets). As you can see, there does not appear to be much of a difference. In general, there are not very many matrix particles (28 out of a total of 563 particles), and most martix particles have only 1 fiber. Onlt 4 samples would have yielded different results, and in no case are the values statistically different from eacvh other. Thus, we conclude this is not much of a basis for concern. Nevertheless, in Phase II, we will require that water samples be analyzed by ISO 10312 in accord with all Libby-specific lab mods.

Please let us know if you feel this resolves the issue, or whether further analysis is needed.

****

Bill Brattin
Syracuse Research Corporation
999 18th Street Suite 1975
Denver CO 80202
Phone: 303-357-3121
Fax: 303-292-4755
e-mail: brattin@syrres.com

TEMWater_Matrix_check.xls

DRAFT RESULTS PENDING VALIDATION

SURFACE WATER FIELD SAMPLE ASBESTOS RESULTS

Reach	Station ID	Index ID	Sensitivity (1/L)	V (L)	Current Approach Based on EPA 100.2[1]			Estimated Based on ISO 10312[2]			Delta Conc	
					Total LA Count	Total # Matrices	Total LA Conc (MFL)	Total # Matrix Fibers[3]	Revised Total Count[4]	Revised Total LA Conc (MFL)		
UPPER RAINY CREEK	URC-1	P1-00391	0.05	20.00	0	0	0.0	0	0	0.0	0.0	
	URC-2	P1-00390	0.11	9.03	52	1	5.8	1	52	5.8	0.0	
TAILINGS IMPOUND-MENT	TP	P1-00269	1.99	0.50	57	0	113.6	0	57	113.6	0.0	
	TP-TOE1	P1-00254	0.05	20.00	0	0	0.0	0	0	0.0	0.0	
	TP-TOE2	P1-00312	0.20	5.02	10	3	2.0	3	10	2.0	0.0	
MILL POND	MP	P1-00313	0.50	2.01	54	1	26.9	2	55	27.4	0.5	[0.66-1.46] The rates are not different
LOWER RAINY CREEK	LRC-1	P1-00304	0.05	20.08	4	0	0.2	0	4	0.2	0.0	
	LRC-2	P1-00251	0.05	20.08	2	0	0.1	0	2	0.1	0.0	
	LRC-3	P1-00303	0.05	20.08	4	0	0.2	0	4	0.2	0.0	
	LRC-4	P1-00302	0.05	20.08	21	1	1.0	1	21	1.0	0.0	
	LRC-5	P1-00301	0.05	20.08	25	0	1.2	0	25	1.2	0.0	
	LRC-6	P1-00300	0.05	20.00	0	0	0.0	0	0	0.0	0.0	
FLEETWOOD CREEK	FC-2	P1-00268	0.05	20.08	4	0	0.2	0	4	0.2	0.0	
	FC-UPPER POND	P1-00266	2.49	0.40	50	3	124.5	10	57	142.0	17.4	[0.59-1.31] The rates are not different
	FC-1	P1-00267	0.08	13.05	51	0	3.9	0	51	3.9	0.0	
CARNEY CREEK	CC-1	P1-00381	0.05	21.08	20	1	0.9	1	20	0.9	0.0	
	CC-2	P1-00380	0.05	20.08	1	0	0.0	0	1	0.05	0.0	
SEEPS	CCS-9	P1-00315	0.05	20.00	0	0	0.0	0	0	0.0	0.0	
	CCS-8	P1-00317	0.05	20.00	0	0	0.0	0	0	0.0	0.0	
	CCS-6	P1-00385	1.99	0.50	50	0	99.6	0	50	99.6	0.0	
	CCS-1	P1-00382	0.14	7.03	53	10	7.5	16	59	8.4	0.9	[0.61-1.32] The rates are not different
	CCS-11	P1-00383	0.33	3.01	50	6	16.6	13	57	18.9	2.3	[0.59-1.31] The rates are not different
	CCS-14	P1-00265	0.20	5.02	55	2	11.0	2	55	11.0	0.0	
	CCS-16	P1-00316	0.08	12.50	0	0	0.0	0	0	0.0	0.0	

Average Delta Conc (MFL)	0.9
Total # Matrices (∑ Column F)	28
Total # Matrices Enumerated (∑ Column H)	49
Total # LA Count EPA 100.2 (∑ Column E)	563
Total # LA Count ISO 10312 (∑ Column I)	584

MFL = million fibers per liter

Pink shading flags the samples that contain matrix structures with more than one associated fiber.

[1] TEM water results are based on method EPA 100.2 which counts each matrix structure as 1.0 structure.

[2] If the TEM water results followed ISO counting rules, matrix structures would have been enumerated based on the total number of countable fibers associated with each matrix

[3] SRC estimate of the total number of countable fibers associated with the matrix structures for each sample based on the sketches of each matrix in the raw bench sheets.

[4] This value is the estimate of what the total LA count would be using ISO counting rules by enumerating the matrix fibers.

TARGET SHEET

EPA REGION VIII

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DOCUMENT DESCRIPTION:

1 CD - LIBBY ASBESTOS OU3 PHASE I RI SURFACE WATER BENCHSHEETS

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